Errata to "An Introduction to the Physics of Particle Accelerators", 2nd Ed.

Mario Conte and William W. MacKay

Chapter 3

1. p. 61: Eq. (3.133) should read:

$$b = -\frac{2^{1/3}}{1-2^{1/3}}.$$

2. p. 61, second line from bottom: First condition of bilinearity should read:

$$[ax+by,z] = a[x,z] + b[y,z].$$

3. p. 68, line after Eq. (3.174): Change "term" to "terms".
4. p. 65, line after Eq. (3.143) should read: which is not quite antisymmetric...
5. Problem 3-9, line after equation should start: Note that this gives ....

Chapter 4

6. p. 87, Eq. (4.57) should be

$$\vec{B}(s) = B_0 \hat{s} \frac{\sqrt{l^2+4a^2}}{2l} \left[\frac{s}{\sqrt{s^2+a^2}} + \frac{l-s}{\sqrt{(s-l)^2+a^2}} \right].$$

7. p. 88, The last line of Eq. (4.59) should read:

$$= -B_0 \frac{\sqrt{l^2+4a^2}}{2l} \left(\frac{a^2}{(s^2+a^2)^{3/2}} - \frac{a^2}{[(s-l)^2+a^2]^{3/2}} \right) r$$

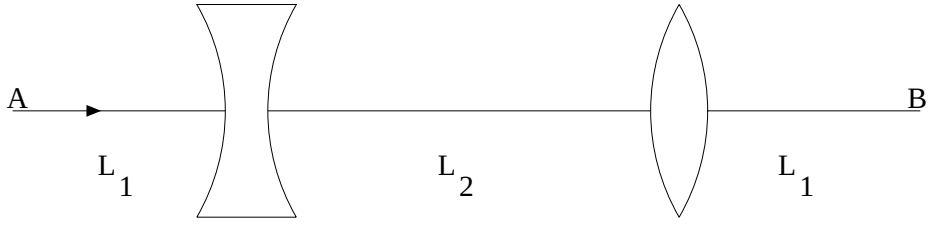
8. p. 92: Problems 4-9 and 4-10 are essentially identical. I'm not sure how that happened. Delete 4-10.

Chapter 5

9. p. 97, 3rd line after Eq. (5.3): Change "eigenvaluesof" to "eigenvalues of".
10. p. 99, 6th line from bottom: Change "this of solution" to "this solution".

Chapter 6

11. p. 121, Fig. 6.2 should be changed to:



Version: 26 Jan., 2009

12. p. 129, 4 lines before Eq. (6.89): The second sentence of the paragraph is wrong. There are some cases of stable matrices with equal tunes and some coupling elements. One example is

$$\mathbf{M} = \begin{pmatrix} \cos\mu & \sin\mu + \frac{a^2}{\sin\mu} & a & 0 \\ -\sin\mu & \cos\mu & 0 & -a \\ a & 0 & \cos\mu & \sin\mu + \frac{a^2}{\sin\mu} \\ 0 & -a & -\sin\mu & \cos\mu \end{pmatrix}.$$

Chapter 7

13. p. 162, Problem 7-3: Replace "γtr" with "$\gamma_{\rm tr}$".
14. p. 162, Problem 7-3: The atomic number of gold is $A = 197$ and not 179.

Chapter 8

15. p. 166, 4 lines before Eq. (8.13) and again 3 lines after Eq. (8.15): Change "loose" to "lose".
16. p. 168, First line: There should not be a bar over the derivative $(dU_\gamma/dU)_s$. (I don't know if this is in all copies. It appears to be a flaw in printing process, since it wasn't in the original electronic files.)
17. p. 169, 3 lines before Eq. (8.37): Change "loose" to "lose".
18. p. 186, Problem 8-5: The last part should be labelled "c" not "b".

Chapter 10

19. p. 229, Problem 8-2: There should be an additional factor of x in the second term on the left side of the equation.

Chapter 11

20. p. 233, Eq. (11.17) should read:

$$\delta Q_{\rm V} = -\frac{\beta_{\rm V} N r_0}{2\pi B_f \sigma_{\rm V}(\sigma_{\rm H} + \sigma_{\rm V})\beta^2\gamma^3}.$$

21. p. 233, 2 lines after Eq. (11.17): Change $\beta^3\gamma^2$ to $\beta^2\gamma^3$.

Chapter 13

22. p. 302, The second line of Eq. (31.212) is missing a factor of i.

Appendix A

23. Reference 5 should be replaced by

    E. D. Courant, "Computer Studies of Phase-Lock Acceleration", 1961 Int. Conf. on H. E. Accelerators, Ed. M. H. Blewett, Brookhaven National Lab, p. 201 (1961).

    H. Koziol, "Beam Diagnostics for Accelerators", CERN 94-01, v. II, p.565-599 (1994). See page 599.

Version: 26 Jan., 2009

Appendix D

24. p. 346, Eq. (D.13): Replace N_z with N.